

paper web provides the hydraulic connection between the web and the two lamina 20, 50.

The first and second laminae 20, 50 are preferably connected by needling batting 60 from the first felt surface 56 of the second lamina 50 through the
5 foraminous imprinting member 21 or the reinforcing structure 23 of the first lamina 20. As the amount of needled batting 60 is increased, the hydraulic connection is enhanced.

For the embodiment shown in Figure 2 having a patterned framework disposed on the reinforcing structure 23, it may be necessary to limit the amount of
10 batting 60 needled between the first felt surface 56 and the reinforcing structure 23 since excessive needling may damage the patterned framework 40.

Prophetically, an alternative means of attaching the first and second lamina 20, 50 involves applying an adhesive to only the discontinuous knuckles 28 on the second surface 24 of the reinforcing structure 23 and pressing the two laminae 20, 50
15 together. Such adhesive must be applied in limited amounts in order to minimize the blockage of water flow through the first lamina. Alternatively or in addition to the adhesive bonding, the needling of batting 60 may be limited to areas along edges of the belt 10 in order to minimize damage to the patterned framework 40.

While particular embodiments of the present invention have been illustrated
20 and described, it would be obvious to those skilled in the art that various other changes and modifications can be made without departing from the spirit and scope of the invention. It is intended to cover in the appended claims all such changes and modifications that are within the scope of the invention.

25 What is claimed is:

1. A papermaking ^{belt} ~~BELT~~ comprising:

two laminae, a first lamina and a second lamina, said first and second
laminae being joined in face-to-face relationship to form a unitary laminate;

said laminate having a first surface and a second surface opposed thereto,

30 said first surface being a paper web contacting surface and
said second surface being a machine contacting surface;

belt
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Woven fabric

said first lamina comprising a reinforcing structure and a patterned framework;

said patterned framework facing outwardly from said reinforcing structure whereby said patterned framework forms said first surface of said laminate;

said second lamina comprising a secondary base and batting joined

thereto;

whereby said batting forms said second surface of said laminate.

10 2. The papermaking belt of Claim 1, wherein said patterned framework extends outwardly from said reinforcing structure from about 0.05 to about 0.25 mm.

3. The papermaking belt of Claim 2, wherein said patterned framework comprises an essentially continuous network.

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4. The papermaking belt of Claim 1, further comprising a hydraulic connection between said first lamina and said second lamina.

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5. The papermaking belt of Claim 4, wherein said hydraulic connection is provided by batting of the second lamina extending through the reinforcing structure of the first lamina.

6. The papermaking belt of Claim 1, wherein said batting has a basis weight of about 100 to about 1000 grams per square meter.

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7. The papermaking belt of Claim 1, wherein said first lamina and said second lamina are joined in face to face relationship by said batting.

8. The papermaking belt of Claim 1, wherein said patterned framework comprises a photosensitive resin.

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two laminae, a first lamina and a second lamina, said first and second lamina being joined in face-to-face relationship to form a laminate;

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said second surface being a machine contacting surface;

said warp and weft yarns being woven to provide discrete

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surface of said laminate;

thereto;

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10. The papermaking belt of Claim 9, further comprising a hydraulic connection between said first lamina and said second lamina.

11. The papermaking belt of Claim 10, wherein said hydraulic connection is provided by said batting needled between said first lamina and said second lamina.

12. The papermaking belt of Claim 9, wherein said first lamina comprises a multi-layer fabric having a second layer of warp and weft yarns, said second layer being interposed between said first layer of said first lamina and said second lamina.

13. The papermaking belt of Claim 9, wherein said first layer is woven to define bilaterally staggered sub-top surface-crossovers.

14. The papermaking belt of claim 9, wherein said warp and weft yarns are woven to provide long knuckles.

15. The papermaking belt of Claim 12, wherein said long knuckles are oriented in a machine direction.

16. A papermaking belt comprising:

- 5 two laminae, a first lamina and a second lamina, said first and second lamina being joined in face-to-face relationship to form a laminate;
- said laminate having a first surface and a second surface opposed thereto,
- said first surface being a paper web contacting surface,
- said second surface being a machine contacting surface;
- 10 said first lamina having a first layer and a second layer;
- said first layer comprising woven warp and weft yarns providing discrete imprinting knuckles;
- said second layer comprising a patterned framework disposed on said first layer and extending outwardly therefrom;
- 15 said patterned framework forming a first imprinting pattern on said first surface of said laminate, said first imprinting pattern being imprintable upon a paper web during papermaking;
- said second lamina comprising a secondary base and batting joined thereto;
- 20 ^{wherein} ~~whereby~~ said batting forms said second surface of said laminate.

17. The papermaking belt of Claim 16, wherein said patterned framework extends outwardly from said first layer from about 0.05 to about 0.25 mm.

25 18. The papermaking belt of Claim 17, wherein said patterned framework comprises an essentially continuous network.

19. The papermaking belt of Claim 16, further comprising a hydraulic connection between said first lamina and said second lamina.

Fig 3
20. The papermaking belt of Claim 19, wherein said hydraulic connection is provided by said batting needled between said first lamina and said second lamina.

5 21. The papermaking belt of Claim 16, wherein said discrete imprinting knuckles provide a second imprinting pattern within said patterned framework, said second imprinting pattern being imprintable upon a paper web during papermaking.

10 22. The papermaking belt of Claim 1, wherein said reinforcing structure has a caliper of about 0.279 mm to about 0.660 mm.

23. The paper making belt of Claim 1, wherein said reinforcing structure has an air permeability of about 300 scfm to about 1100 scfm.

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24. The papermaking belt of Claim 1, wherein said reinforcing structure comprises a square weave woven fabric having a shed of 2.

20 25. The papermaking belt of Claim 3, wherein said essentially continuous network provides from about 25 percent to about 75 percent of the paper web contacting surface.

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